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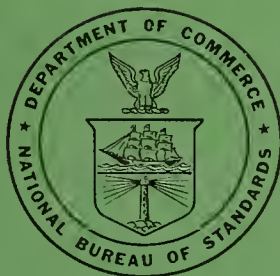
Bibliography

on

The Analyses of Optical Atomic Spectra Section 3

$^{42}\text{Mo} - ^{57}\text{La}$

$^{72}\text{Hf} - ^{89}\text{Ac}$



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Bibliography on The Analyses of Optical Atomic Spectra Section 3

The Spectra of Molybdenum, Technetium, Ruthenium,
Rhodium, Palladium, Silver, Cadmium, Indium, Tin,
Antimony, Tellurium, Iodine, Xenon, Cesium, Barium,
Lanthanum—Hafnium, Tantalum, Tungsten, Rhenium,
Osmium, Iridium, Platinum, Gold, Mercury, Thallium,
Lead, Bismuth, Polonium, Astatine, Radium and
Actinium

Charlotte E. Moore

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Abstract

The three published volumes on "Atomic Energy Levels", NBS Circ. 467, contain for each spectrum the bibliography that was used in compiling the data. The present work is a continuation of these bibliographies arranged in the same form. The time interval is the span from the respective dates of the earlier publications to the present. The selection of references is restricted to those needed for the preparation of revised tables of atomic energy levels and multiplets.

The bibliography is being published by Sections, each of which covers the same elements as the respective volumes of AEL. Section 1 was issued in September 1968; it contains references for the elements ^1H through ^{23}V , corresponding to AEL Volume I. Section 2 appeared in February 1969; as in AEL Volume II, the references cover the elements ^{24}Cr through ^{41}Nb .

The present Section is similarly arranged, giving references to the spectra of the elements, ^{42}Mo through ^{57}La and ^{72}Hf through ^{89}Ac , similar to AEL Volume III. For a given element the spectra are listed in order of increasing stage of ionization.

The original papers have been examined for nearly all of the quoted references.

Key Words: Spectra, Atomic; Analyses of Atomic Spectra; Elements, Spectra of Mo through La, Hf through Ac; Bibliography, Atomic Spectra; Atomic Spectra, Mo through La, Hf through Ac; References to Atomic Spectra.

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Index to Spectra

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Molybdenum	42	Mo I	1	Tellurium	52	Te I	12
		Mo II	1			Te II	13
		Mo III	1			Te III	13
		Mo IV	1			Te IV	13
		Mo V	2			Te V	13
		Mo VI	2			Te VI	13
		Mo VII	2	Iodine	53	I I	14
		Mo VIII	2			I II	14
		Mo IX	2	Xenon	54	Xe I	15
		Mo X	2			Xe II	17
		Mo XI	2			Xe III	17
		Mo XVI	2			Xe IV	18
Technetium	43	Tc I	3			Xe V	18
		Tc II	3			Xe VI	18
		Tc III	3			Xe VII	18
Ruthenium	44	Ru I	4			Xe VIII	18
		Ru II	4			Xe IX	19
		Ru III	4	Cesium	55	Cs I	19
Rhodium	45	Rh I	4			Cs II	20
		Rh II	5	Barium	56	Ba I	21
		Rh III	5			Ba II	21
Palladium	46	Pd I	5			Ba III	21
		Pd II	6			Ba IV	21
		Pd III	6	Lanthanum	57	La I	21
		Pd XX	6			La II	22
Silver	47	Ag I	6			La III	22
		Ag II	6	Hafnium	72	Hf I	23
		Ag III	7			Hf II	23
		Ag XXI	7			Hf III	23
Cadmium	48	Cd I	7			Hf IV	24
		Cd II	8	Tantalum	73	Ta I	24
		Cd III	9			Ta II	24
		Cd XXII	9			Ta III	24
Indium	49	In I	9	Tungsten	74	W I	25
		In II	10			W II	25
		In XXIII	10			W LXV	25
Tin	50	Sn I	10	Rhenium	75	Re I	25
		Sn II	11			Re II	26
		Sn IV	11	Osmium	76	Os I	26
		Sn XXIV	11			Os II	27
Antimony	51	Sb I	12				
		Sb II	12				
		Sb XXV	12				

Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Iridium	77	Ir I	27	Bismuth	83	Bi I	35
		Ir II	27			Bi II	36
Platinum	78	Pt I	27	Polonium	84	Po I	36
Gold	79	Au I	28			Po II	36
		Au II	28	Astatine	85	At I	36
		Au III	28				
Mercury	80	Hg I	29	Radium	88	Ra I	37
		Hg II	32	Actinium	89	Ac I	37
		Hg III	32			Ac II	37
Thallium	81	Tl I	33			Ac III	37
		Tl II	34			Ac IV	37
		Tl IV	34				
Lead	82	Pb I	34				
		Pb II	35				
		Pb III	35				
		Pb IV	35				

Bibliography on The Analyses of Optical Atomic Spectra

Charlotte E. Moore

The present bibliography is a continuation of the series of which two Sections have been published; the first in September 1968 and the second in February 1969 [1].¹ Selected references are listed to meet a steady demand for data on atomic spectra. No attempt has been made to give complete reference lists on atomic spectra including numerous specialized subjects. Those listed have been chosen for individual spectra on the same basis of selection as was used for the Volumes on "Atomic Energy Levels" [2]. They are references that deal with the outer structure of atoms as revealed by their optical spectra. They cover the time interval between the publication of the respective Volumes of "Atomic Energy Levels" and the present time.

Section 1 [1] deals with the elements ¹H through ²³V from 1949 to the middle of 1968. Earlier references were given in "Atomic Energy Levels" Volume I. Section 2 [1] covers the elements ²⁴Cr through ⁴¹Nb, corresponding to AEL Volume II, which was issued in 1952. The present Section contains references to the elements ⁴²Mo through ⁵⁷La and ⁷²Hf through ⁸⁹Ac, i.e., similar to those in AEL Volume III, issued in 1958.

This publication will conclude with Section 4 which will deal with rare-earth spectra, and thus complete the elements in the Periodic Table. The "Atomic Energy Levels" for rare-earth spectra scheduled to comprise Volume IV of the AEL set, are not yet compiled. This Volume has been delayed because many of the very complex spectra to be included are at present under active investigation. Meanwhile, it is felt that a bibliography on rare-earth spectra may help to meet present needs.

As in the preceding Sections the content of individual papers is briefly described by key letters or words. The letters have the following meanings:

C L	Classified lines
E D	Energy level diagram
G D	Grotrian diagram
I P	Ionization potential
I S	Isotope shift
T	Terms (and/or energy levels)
W L	Wavelength
Z E	Zeeman effect
[]	Forbidden transitions
hfs	Hyperfine structure
Osc. Str.	Oscillator strength
x	Correction connecting sets of terms of different multiplicities

The letters "A" and "L" entered in parentheses before the date of the reference denote respectively, that the paper is an Abstract or a Letter to the Editor.

In general, the references have been selected as those needed to revise and extend the author's Tables of Atomic Energy Levels [2] and Multiplets [3, 4, 5]. They refer mostly to laboratory observations and analyses. There are a few special cases where forbidden lines observed in coronal or nebular spectra provide reliable information on intervals of ground terms of selected spectra. Similarly, some papers on theoretical work are also extremely useful. Such references are included.

A limited number of scattered references on related topics such as hyperfine structure, Stark Effect, Isotope Shift, etc., are also included, but no effort has been made to cover these related subjects completely.

¹ Figures in brackets indicate the literature references on page iv.

In tabulating the references for a given spectrum the overall plan has been to arrange them in alphabetical order by author and by year, starting with the earlier papers. Owing to the use of the photographic method for publication, this order has not been followed strictly. If excellent reference material became available after the final typing had been completed, additional references were inserted under the proper spectra where space permitted. This has introduced some irregularities in arrangement, but it has also made the bibliography more useful.

Nearly all of the references quoted here have been examined by the author. Only a few which were not available have been copied on the basis of abstracts found in the literature.

The author is grateful to all who have generously contributed material for inclusion here. Some have made special effort to furnish current references and reprints, and to outline programs in progress in various laboratories. She appreciates the useful additions to the bibliography kindly furnished by L. Minnhagen. Special thanks are also due Isabel D. Murray for her meticulous care in preparing the press copy of the manuscript.

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Mo viii

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